Prairies 101


Blue Grama

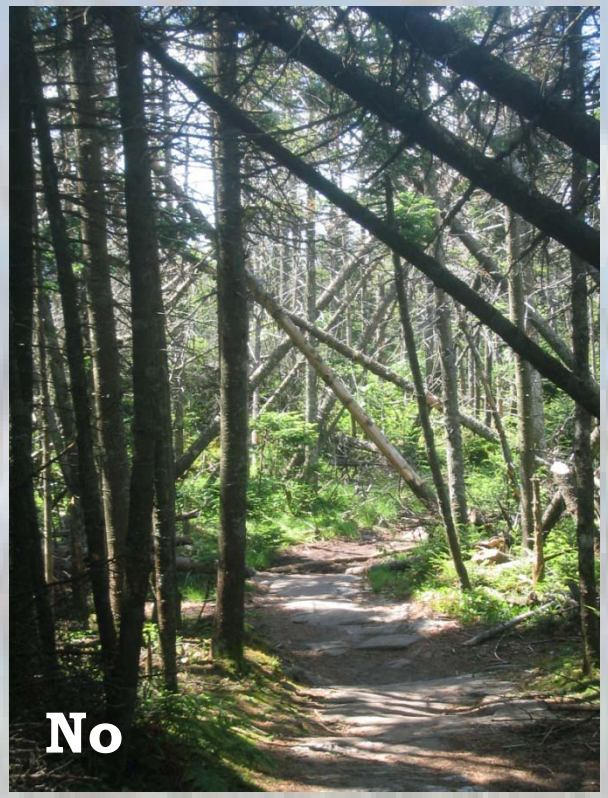

Leadplant

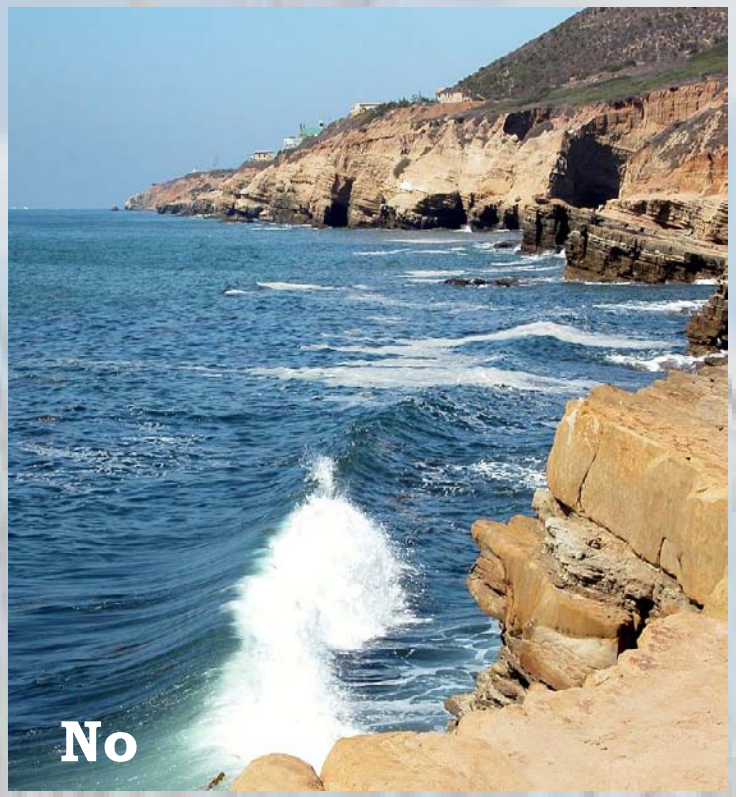

Coyote

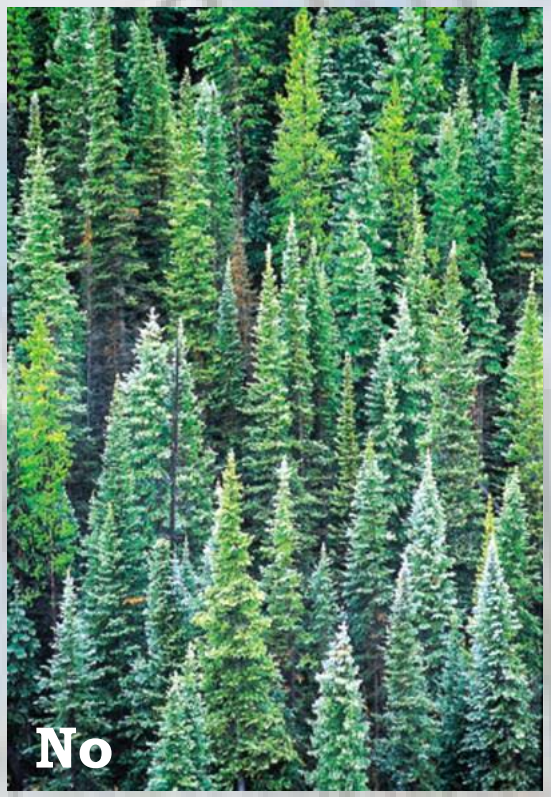
NEBRASKA GAME PARKS

Project WILD NEBRASKA

What are prairies?

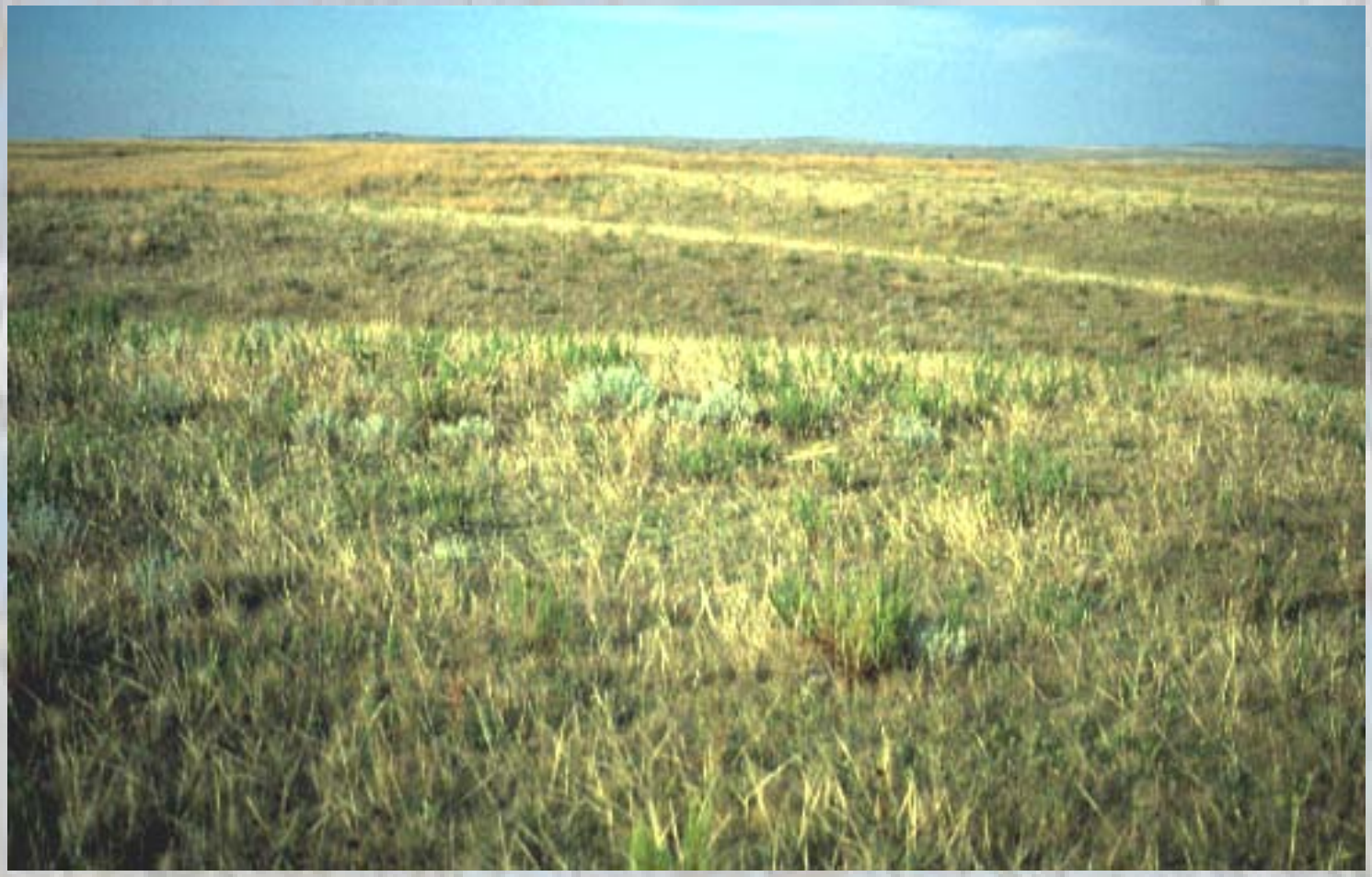






Yes!

Shortgrass Prairie



Yes!

Sandhills – Dunes and dry valleys

Yes!

Mixed-grass Prairie

Yes!

Tallgrass Prairie

Definition of Prairie

Prairie refers to an area of land of low topographic relief that principally supports grasses and herbs, with few trees.

Prairies are generally of a mesic (moderate or temperate) climate.

French explorers called these areas "prairie", from the French word for "meadow".

What Makes Prairies Unique


Indiangrass

- No trees… very few trees.
- Rich, highly organic soils (caused from the high biomass of the grasses).
- Can withstand, actually benefits from fire.
- Little rain or water.
- Plant adaptations to high sun, little water (i.e. roots).

Prairie Plant

There are two main types of prairie plants: grasses and forbs.

Grasses have slender leaves with a linear vein pattern. Deep roots.

Forbes are all the plants in the prairie other than grasses (and trees or shrubs). Non-woody. Broader leafs (than grasses).

Prairie Plant Adaptations

- Deep roots to withstand fire and obtain needed moisture.
- Long, slender leaves to prevent overheating and excessive water-loss.
- Often, broadleaf plants will hold their leaves upright to minimize sun exposure.

Why does Nebraska Have Prairies?

Glacial ice-sheets retreated from this area 12,000 to 10,000 years ago.

The climate gradually changed.


Spruce Forest

Spruce and pine forests retreated with the colder glacial climate.


Prairie

Prairie began growing in the hot, dry climate.

Fires and grazing kept trees out and helped prairie plants grow.

Nebraska's Prairies

Nebraska has 4 general types of prairies:

- Shortgrass
- Sandhills
- Mixedgrass
- Tallgrass


Sandhills Prairie


Tallgrass Prairie


Mixedgrass Prairie
Sandhills
Shortgrass Prairie
Tallgrass
Mixedgrass Prairie
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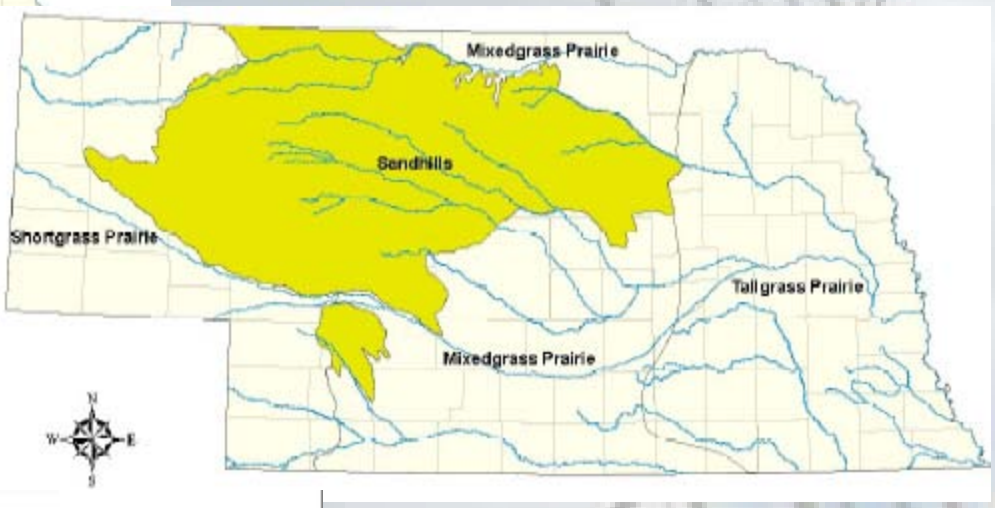
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Sandhills
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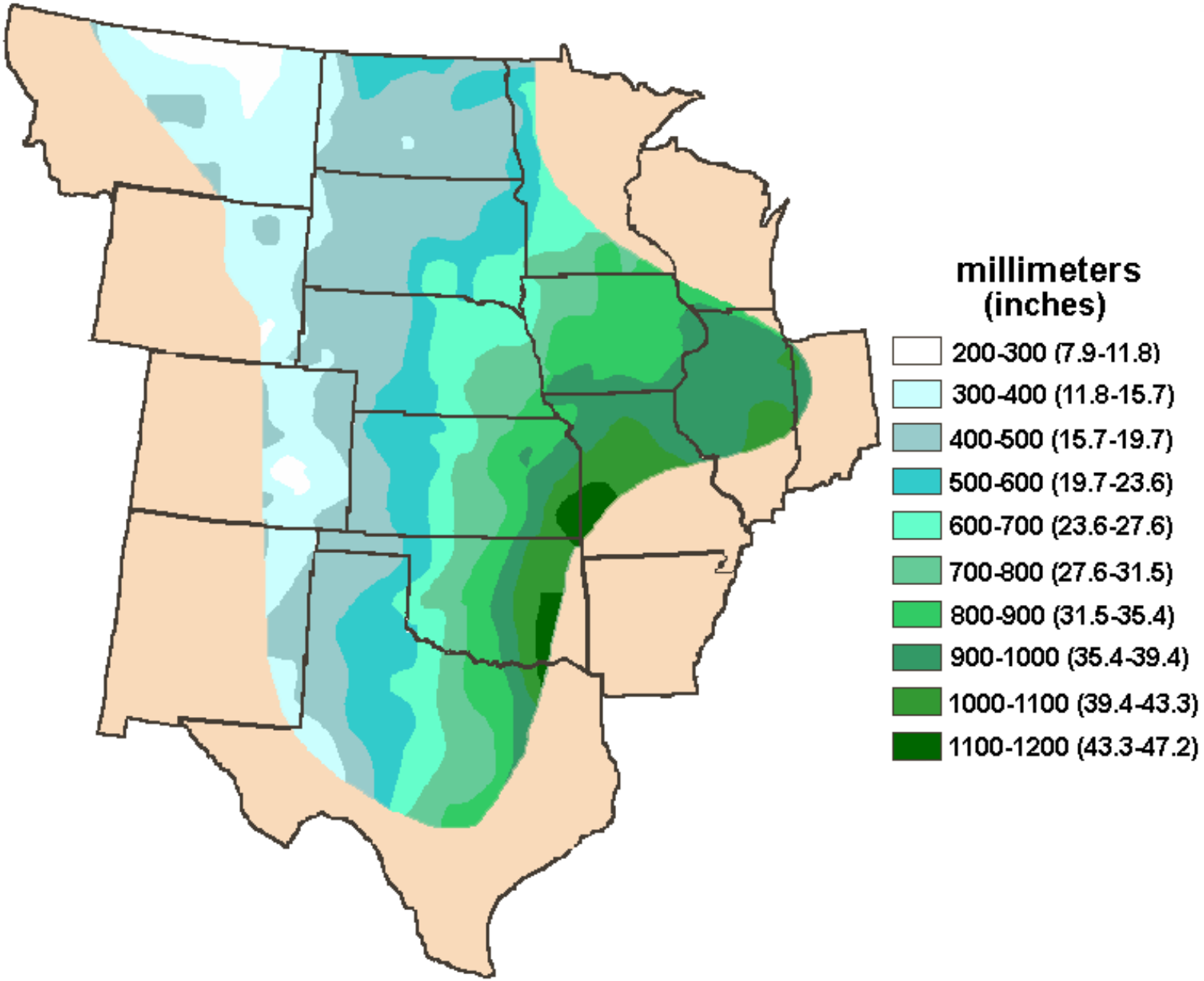

millimeters
(inches)
200-300 (7.9-11.8)
300-400 (11.8-15.7)
400-500 (15.7-19.7)
500-600 (19.7-23.6)
600-700 (23.6-27.6)
700-800 (27.6-31.5)
800-900 (31.5-35.4)
900-1000 (35.4-39.4)
1000-1100 (39.4-43.3)
1100-1200 (43.3-47.2)

Shortgrass Prairies

In its truest form, Shortgrass prairies are found in Banner, Cheyenne, Deuel, and Kimball counties.

Within the Shortgrass prairies, there are patches of Mixedgrass prairies.

Wet Meadows and deciduous woodlands are along rivers and creeks.

Shortgrass Prairies: Species

Grasses
Numerous species, usually not taller than 10 inches.

Forbs
More than 100 species.

Birds
More than 300 species of resident and migratory birds.

Mammals
Wide variety… ungulates, predators, small mammals.

Reptiles and Amphibians
Several species of both reptiles and amphibians.


Mountain Plover


Buffalograss

Shortgrass Prairies: History


Purple Threeawn

First known inhabitants – Pawnee and Otoe Indians.

Europeans came with Coronado.

Oregon and Mormon Trail.

Homestead Act of 1864.

Transcontinental Railroad.

1920's drought… increased production 1940's – 70's.

1990's drought… no till and dry land farming

Conservation Reserve Program.

Shortgrass Prairies: Stresses and Conservation Issues

- Alteration of natural disturbance regime.
- Altered hydrology and channel degradation of rivers and streams.
- Spread of invasive species
- Lack of knowledge about region's biological and ecological processes.
- Fragmentation of natural habitats.


Purple Locoweed

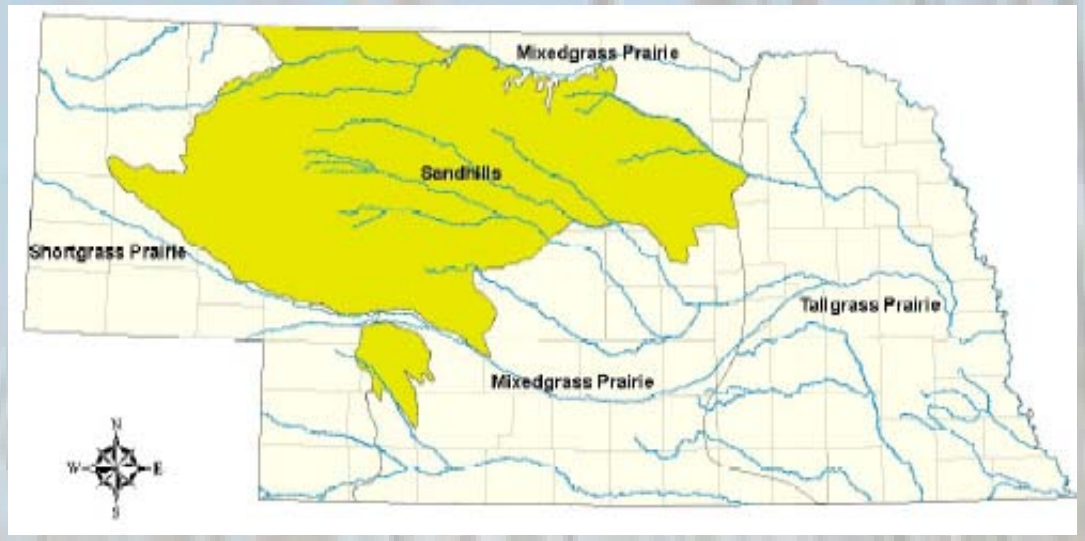
Sandhills Prairies

One of the largest grass-stabilized dune regions in the world.

Poorly developed soils – little rain, young ecosystem.

Sandy soils = fast percolation = lots of groundwater.

Three micro-ecoregions within the Sandhills: Dune Prairies, Dry Valley Prairies, Blowouts.



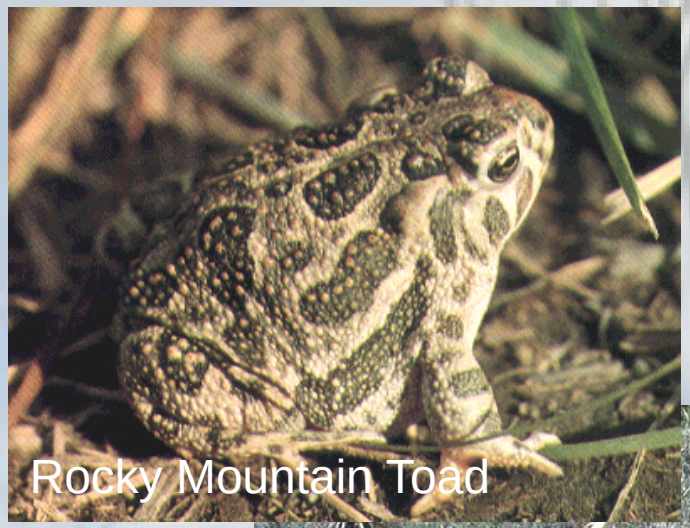
Sandhills Prairies: Species

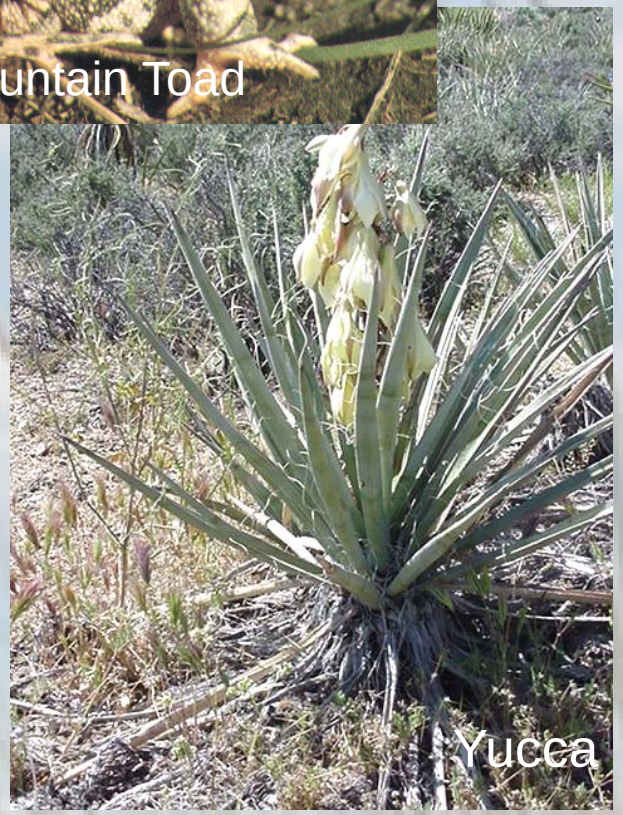
Grasses, Forbs, and Shrubs
Different grasses and forbs found within tow areas – dunes, dry valleys. Not many plants in blowouts.

Birds
More than 300 species of resident and migratory birds.

Mammals
Wide variety… ungulates, predators, small mammals.

Reptiles and Amphibians
Several species of both reptiles and amphibians.


Rocky Mountain Toad


Yucca

Sandhills Prairies: History


Blowout Penstemon

Earliest human inhabitants: 10,000 years ago.

Nearly a dozen tribes have occupies the Sandhills.

First Euro-Americans: hunters and trappers.

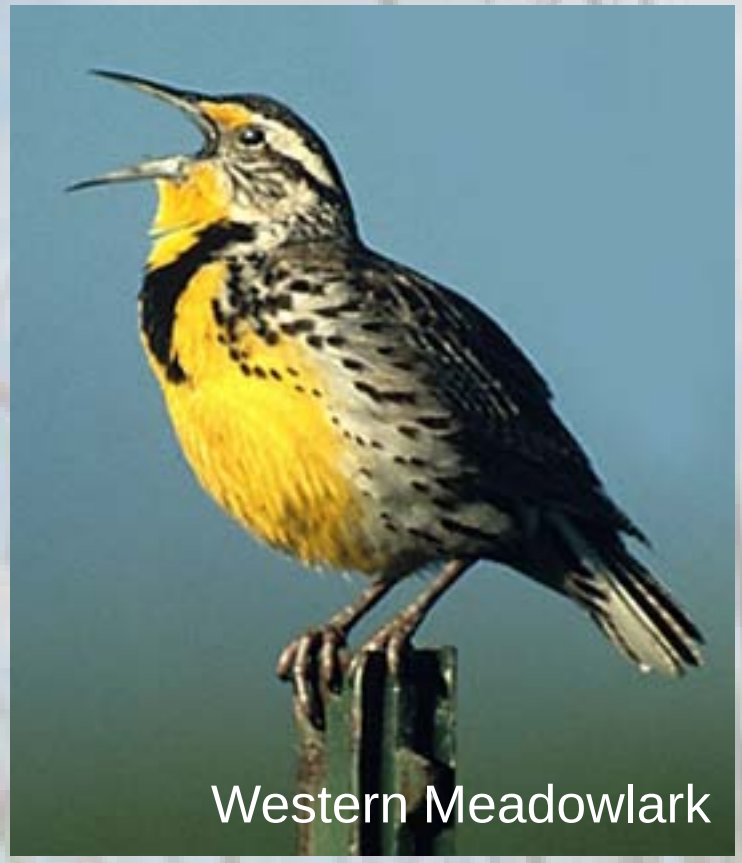
1870's: cattle producers.

Early 1900's, Kinkaid Act encouraged settlers.

Today cattle outnumber humans 20:1.

Sandhills Prairies: Stresses and Conservation Issues

- Alteration of natural burning and grazing regimes.
- Wetland drainage.
- Spread of invasive species
- Inter-basin water transfer.
- Lack of knowledge about region's biological and ecological processes.
- Ranching economics.
- Fragmentation of natural habitats.

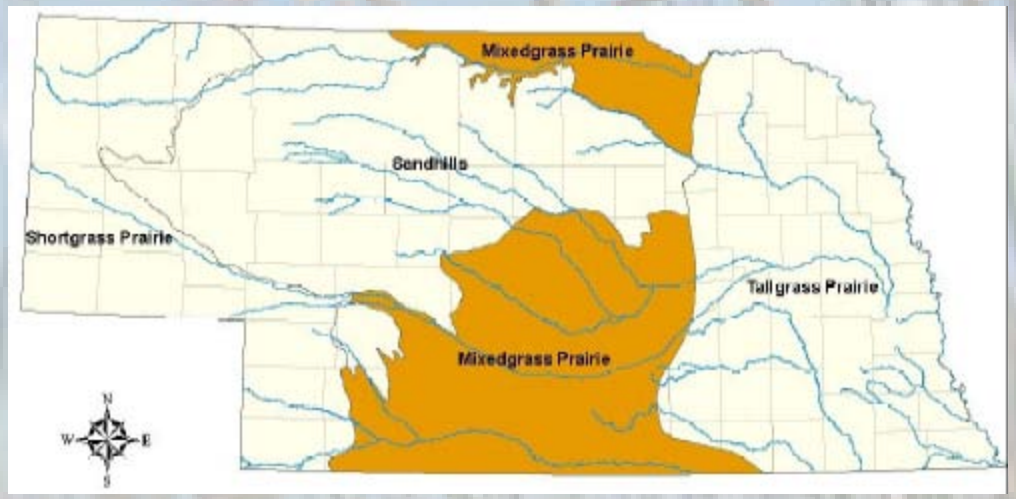

Western Meadowlark

Mixedgrass Prairies

Transition zone between Tallgrass and Shortgrass.

Deep loess soils are fertile, but limited precipitation and high evapotranspiration rates limit grassland development.

This region is well known for its wetlands: playas, wet meadows, and riparian wetlands.



Mixedgrass Prairies: Species

Grasses
Tallgrass in the east and along river floodplains. Shortgrass in the west. Shortgrass on hilltops, medium grasses along the hillsides, and Tallgrass in the valleys.

Birds
More than 350 species of resident and migratory birds.

Mammals
Wide variety… ungulates, predators, small mammals.

Reptiles and Amphibians
Several species of both reptiles and amphibians.


Ring-necked Pheasant

Mixedgrass Prairies: History


Western Wheatgrass

- First nomadic hunting and gathering in Platte River Valley.
- Pawnee Indians made the first settlements.
- Transcontinental railroad increased population in the 1860's.
- Population boomed and declined depending on precipitation.
- WWI brought increased demand for ag. products = increased population.
- 1940's and 50's brought increased efficiency of ag. practices.
- Today, trend is fewer and larger farms.

Mixedgrass Prairies: Stresses and Conservation Issues

- Altered hydrology.
- Spread of invasive species.
- Fragmentation of habitats.
- Alteration of natural grazing and burning regimes.
- Lack of awareness and knowledge of the biodiversity.
- Loss of land enrolled in conservation programs.
- Wetland drainage.
- Lack of collaboration between ag. and conservation communities.
- Sedimentation of rivers and wetlands.


Stiff Sunflower

Tallgrass Prairies

Significantly taller than mixedgrass and shortgrass prairie grasses.

Today, less than 1% of tallgrass prairies remain in the United States. In Nebraska 2% of tallgrass prairies remain.

Receives more precipitation than other ecosystems in Nebraska = taller grasses.

Area also has wetlands and deciduous forests.

Tallgrass Prairies: Species

Grasses
Grasses can reach six feet or taller in the rich soils.

Forbs
Hundreds of species.

Birds
More than 300 species of resident and migratory birds.

Mammals
Wide variety… ungulates, predators, small mammals.

Reptiles and Amphibians
55 species.


Big Bluestem


Purple Coneflower

Tallgrass Prairies: History

- Original inhabitant were big game hunters about 12,000 years ago.
- Earth lodge Native Americans.
- Lewis and Clark came through in 1804.
- 1823 first settlement…Bellevue
- Homestead Act in 1862.
- By 1900, most farmable land was being farmed.
- Today, more urban and fewer and larger farms.


Timber Rattlesnake


Prairie Vole

Tallgrass Prairies: Stresses and Conservation Issues


Swainson's Hawk

- Alteration of natural disturbance regime.
- Spread of invasive species.
- Altered hydrology.
- Lack of awareness and knowledge about the region's biodiversity.
- Sedimentation of rivers and wetlands.
- Pollution by pesticides, and urban/industrial runoff.
- Fragmentation of natural habitats.
- Loss of lands enrolled in conservation programs.